

PRECAUTIONARY
CONSTRUCTION MANAGEMENT
FOR
SUSTAINABILITY

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I/We* hereby declare that I/We* have checked this thesis/project* and in my/our* opinion, this thesis/project* is adequate in terms of scope and quality for the award of the Bachelor Degree of Civil Engineering

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I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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“Bismillahirrahmanirrahim”

“Dengan nama Allah Yang Maha Pemurah Lagi Maha Penyayang”

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ABSTRAK

Pelaksanaan untuk kelestarian dalam sektor pembinaan bergantung kepada pelbagai peringkat di peringkat global, nasional, serantau, tempatan, korporat dan individu. Pencegahan dalam pembangunan kelestarian di semua sektor pembinaan akan membawa banyak manfaat dan fungsi kepada orang-orang pada masa kini dan juga untuk generasi akan datang yang digunakan. Bagi mencapai pembinaan mampan, sangat penting untuk menyeimbangkan asas-asas persekitaran iaitu kemapanan, aspek ekonomi dan sosial bersama-sama. Objektif kajian ini adalah mengkaji dan mengenal pasti prinsip-prinsip utama kemampanan dan menggalakkan kesan positif dan meminimumkan kesan negatif ke atas ekonomi, alam sekitar dan sosial, untuk mengenal pasti dan merekabentuk rangka kerja soal selidik yang berkaitan dengan pengurusan pembinaan berjaga untuk kemampanan, dan untuk menganalisis pengurusan pembinaan berjaga-jaga untuk kelestarian. Kajian ini dilakukan melalui soalan tentang kelestarian dalam sektor pembinaan. Sebanyak 75 soal selidik diedarkan dan dijawab oleh responden. Data dianalisis menggunakan Relatif Index Penting. Dari kajian ini, didapati bahawa tujuan pengurusan pembinaan berjaga-jaga adalah untuk memelihara akses kepada perkhidmatan ekosistem yang penting untuk kesihatan dan kesejahteraan. Kesimpulannya, menghormati orang dan alam sekitar setempat mereka, dan berusaha meminimumkan kesan sosial yang buruk dan memaksimumkan kesan sosial yang positif terhadap projek ini adalah penyelesaian untuk pengurusan pembinaan pencegahan untuk kelestarian sektor pembinaan.

ABSTRACT

The implementation for sustainability in the construction sector depends on the varying extents at global, national, regional, local, corporate and individual levels. The precautionary in sustainability development in all construction sector will bring a lot of benefits and functions to people nowadays and also for future generations used. To achieve sustainable construction, it is very important to balance the basic principles of sustainability i.e. environment, economic and social aspect together. The objectives of this study are review and identify the key principles of sustainability and promote positive impacts and minimizing negative impacts on economic, environmental and social, to identify and design questionnaire framework related to precautionary construction management for sustainability, and to analysis the precautionary construction management for sustainability. The study is carried out through questionnaires. A total of 75 questionnaires were distributed and answered by respondents. The data were analyzed using Relative Importance Index. From the study, it was found that the purpose of the precautionary construction management is to preserve access to ecosystems services essential to health and wellbeing. In conclusion, respect people and their local environmental, and seek to minimize the adverse social impacts and maximize the positive social impacts of the project is the solution for the precautionary construction management for sustainability in construction sector.

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LIST OF ABBREVIATIONS

WCED	World Commission on Environment and Development
SA	Sustainability Assessment
PP	Precautionary Principle
RII	Relative Importance Index

CHAPTER 1

INTRODUCTION

1.1 Overview

In a broad term, sustainability is refers to the need to develop the sustainable models necessary for both the human race and planet earth to survive. Sustainable development (or sustainability) is about enabling all people throughout the world to satisfy their basic needs and enjoy a better quality of live without compromising the quality of live for future generation (Sahota, 2013).

According to the Report of the World Commission on Environment and Development (WCED): Our Common Future state that, *“sustainability is the development that meet the needs of the present without compromising the ability of future generations to meet their needs”*(Brundtland, 1987).

Sustainability in building development is a broad and complex matter, which is nowadays, has been one of the biggest issues in the construction industry. Sustainability deals with action oriented part such as planning for a long duration, assessing the impact on environment, influence on society, protecting nature, embracing innovation, understanding the constraints, creating and fostering awareness about the system and following the best practices.

The currently prevailing the meaning of sustainability underlines cross generational equity, clearly an essential idea however one which postures troubles since it is not generally simple to decide future generation’s needs. Anchoring an alternative definition to the connection between a population and the conveying limit of this planet offers unrivalled operational use since it contains various key factors, all possibly quantifiable. For example; population numbers, rate of consumption of resources, impacts on absorption limit of sinks, a measure of prosperity, and the like.

Subsequently, in general, however more significantly in the specific setting of human activity on the planet, the accompanying is advertised:

Sustainability:

“A dynamic equilibrium in the processes of interaction between a population and the carrying capacity of an environment such, that the population develops to express its full potential without adversely and irreversibly affecting the carrying capacity of the environment upon which it depends” (Ben-Eli, 2006)

1.2 Background of Study

Topics of sustainability have been addressed by several studies, but it still a lot of important matters to be considered and focussed about this topic before construct any construction. The conditions for sustainability are difficult to achieve and even more difficult to demonstrate (Boswell et al., 2005). Sustainability is a complex term to define in a sufficiently significant or practical way so as to make it operative and there are wide ranging insights into sustainability and its practices.

Sustainability implies the preservation of the physical and social environment and the application of the concept of sustainability, which is vital important. The sustainability is based on the three main principles that constitute environmental, economic and social sustainability. Sustainability is usually related to the environmental protection, however, for their effective implementation it is necessary to comply with the other three principles.

The implementation for sustainability in the construction sector depends on the varying extents at global, national, regional, local, corporate and individual levels. The precautionary in sustainability development in all construction sector will bring a lot of benefits and functions to people nowadays and also for future generations used. The sustainability construction can be better developments if the construction does not causing more environments, social and economic problem during or after the construction finish and does not need a lot of maintenance for the construction.

Precautionary in construction management means that the first things to do before any construction work is to observe and analyse for any of risks or unwanted problem occur before, during or after the construction at the site.

It is important to point out that human beings are the focus of sustainability and have the right to a healthy and productive life in harmony with nature. The sustainability is most easily achieved by the participant of all concerned citizens at all levels and the state should encourage public awareness and provide all necessary information so that sustainability development becomes a strategic guideline.

1.3 Problem Statement

Precautionary construction management for sustainability in construction sector is an important matter that needs consideration regardless the requirement and to fulfil the needs for the future generation. For any sustainable construction before commencing any of projects, the precautionary need to be considered at the site area. The consideration for precautionary construction managements based on the environmental, economic and social interest.

In environmental issues may present themselves as temporary or permanent changes to the atmosphere, water and land due to human activities, which can result in impacts that may be either reversible or irreversible.

In environmental aspects, the precautionary is an important matter that need to be focus on before commence any work progress. At the risky places, for example the site is at the hillside. The developers, engineers, contractor or project manager must follow the “Safety Guideline for Hill-Site Development 2012”. This guideline is for safety and environment of hill-site development. It also provides a clear and consistent application procedures and control during construction and maintenance (Sew, 2014).

In society aspect, its highlight the unity and continuity society that accepted and allow people to do the work that can achieve to meet their goals. Social sustainability is about identifying and managing business impacts, both positive and negative, on people. Directly or in directly, companies affect what happens to employees, workers in

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